

INTEGRATED
Environmental Services, Inc.

Parcel D Excavation Plan

**Boeing Realty Corporation
C-6 Facility
Los Angeles, California**

July 1999





INTEGRATED
Environmental Services, Inc.

July 12, 1999
Via Federal Express

Augustine Anijelo
California Environmental Protection Agency
Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Subject: **Parcel D Excavation Plan**
Boeing C-6 Facility, Los Angeles, California

Dear Mr. Anijelo:

On behalf of the Boeing Realty Corporation, Integrated Environmental Services Inc. is pleased to submit the revised document pertaining to the excavation of arsenic-impacted soil identified at the C-6 facility, Parcel D.

Based on our July 9, 1999 discussions of the Parcel D Excavation Plan, the only change requested by the Board was the elimination of composite-confirmation sampling (Section 3.1.1). Discrete samples will be collected from the side walls and bottoms of the excavation areas. The excavation plan has been revised to reflect this change. In doing so, we have been granted a conceptual authorization to implement the Parcel D Excavation Plan.

Due to coordination activities, the excavation at Parcel D will commence on Monday, July 21, 1999. We believe that the excavation activities will last for approximately 5 to 7 days. You are welcome to visit the site at anytime during these activities.

If you have any questions or comments, please contact me at (949) 852-9050, extension 14.

Very truly yours,

Joann P. Ornelas
Program Manager

cc: Mario Stavale, Boeing w/encl.
Deborah Oudiz, DTSC w/encl.

encl.: (1)



INTEGRATED
Environmental Services, Inc.

July 9, 1999
Via Delivery

Augustine Anijielo
California Environmental Protection Agency
Regional Water Quality Control Board
Los Angeles Region
101 Centre Plaza Drive
Monterey Park, CA 91754

Subject: **Parcel D Excavation Plan**
Boeing C-6 Facility, Los Angeles, California

Dear Mr. Anijielo:

On behalf of the Boeing Realty Corporation, Integrated Environmental Services Inc. is pleased to submit for your review the attached document pertaining to the excavation of arsenic-impacted soil identified at the C-6 facility, Parcel D.

Based on the results from the site investigation conducted on June 16, 1999, a single concentration of arsenic was identified to be present above the site-specific health-based remediation goal of 14 milligrams per kilograms (IESI 1997). This single concentration prompted further delineation. Arsenic-impacted soil has been delineated over an area measuring approximately 375 by 225 feet, to a depth of 1.5 feet below ground surface (bgs), with a few isolated locations extending to approximately 2.5 feet bgs.

The excavation plan outlines the approach that Boeing will take to restore Parcel D to a state that does not pose a threat to human health or the environment.

Integrated is working with Boeing to initiate field activities early next week. We believe that the excavation activities will last for approximately 5 to 7 days. You are welcome to visit the site at anytime during these activities.

If you have any questions or comments, please contact me at (949) 852-9050, extension 14.

Very truly yours,

Joann P. Ornelas
Program Manager

cc: Mario Stavale, Boeing w/encl.
Deborah Oudiz, DTSC w/encl.

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Parcel D

Excavation Plan

Boeing Realty Corporation
C-6 Facility

Los Angeles
California

July 1999

Prepared by
Integrated Environmental Services, Inc.

For
Boeing Realty Corporation



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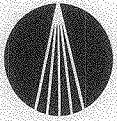
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NOTICE

This report was prepared for Boeing Realty Corporation (Boeing) by Integrated Environmental Services, Inc. (Integrated), an independent consultant, and is based in part on information not within the control of either Boeing or Integrated. While it is believed that the information contained herein will be reliable under the conditions and subject to the limitations set forth herein, neither Boeing nor Integrated guarantee the accuracy thereof. The use of this report or any information contained therein shall be at the user's sole risk. Such use shall constitute an agreement to release, defend and indemnify Boeing and Integrated from and against any and all liability in connection therewith (including any liability for special, indirect, incidental or consequential damages) whether such arises in contract, negligence or otherwise.



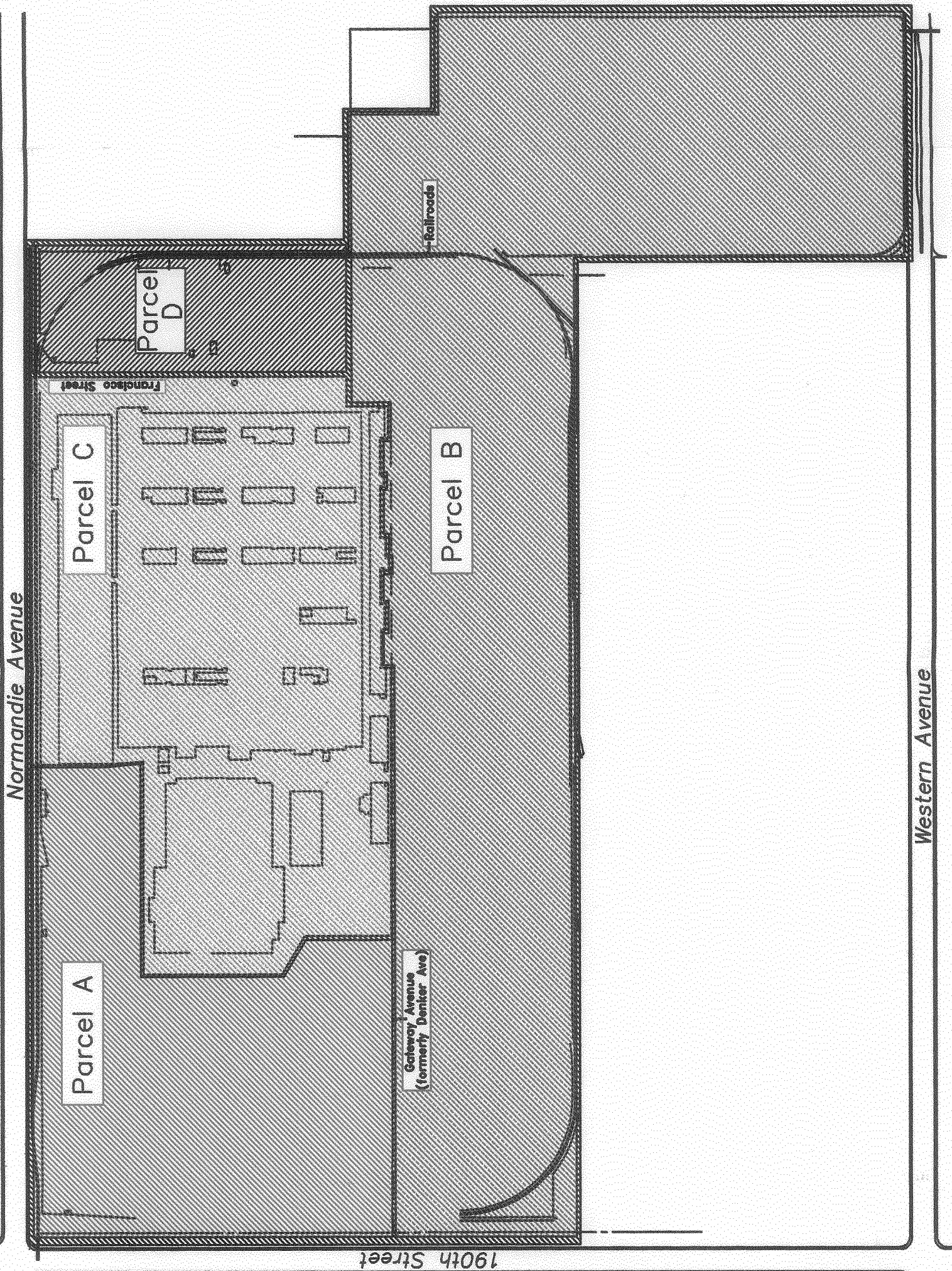
1. INTRODUCTION

The Boeing Realty Corporation C-6 facility in Los Angeles, California, is currently undergoing a phased redevelopment. The facility (Figure 1-1) has been used in the manufacture, storage, and distribution of aircraft parts and components for over 45 years. Storage and distribution operations are active in the southeastern corner of the facility, but the northeastern and western portions of the property are being redeveloped for commercial use.

As shown in Figure 1-2, the site has been divided into four parcels. Redevelopment of the northeastern portion of the property, Parcel A, began in 1996 and is ongoing. BRC sold this parcel in December 1998. Redevelopment of the western portion, Parcel B, began in 1998 and is



FIGURE 1-1
C-6 FACILITY AND VICINITY



INTEGRATED Environmental Services, Inc. 3300 Wilshire Blvd., Suite 200 Beverly Hills, CA 90210 (916) 833-0000	TITLE: Parcel Delineation Boeing C-6 Facility Los Angeles, CA				PROJECT NO.: BOC6/PARD			
	DWN: JDL	DES: JDL	CHKD: JPO	APPR: JSB	FIGURE NO.: 1-2			
			DATE: 4/23/99	REV: 1				



also ongoing. Parcel C occupies the eastern portion of the property and will be redeveloped at a later date. However, because the southernmost portion of Parcel C historically has been used only for parking and outdoor storage, and because the area will be available for redevelopment in early Summer 1999, this area has been separated out as Parcel D.

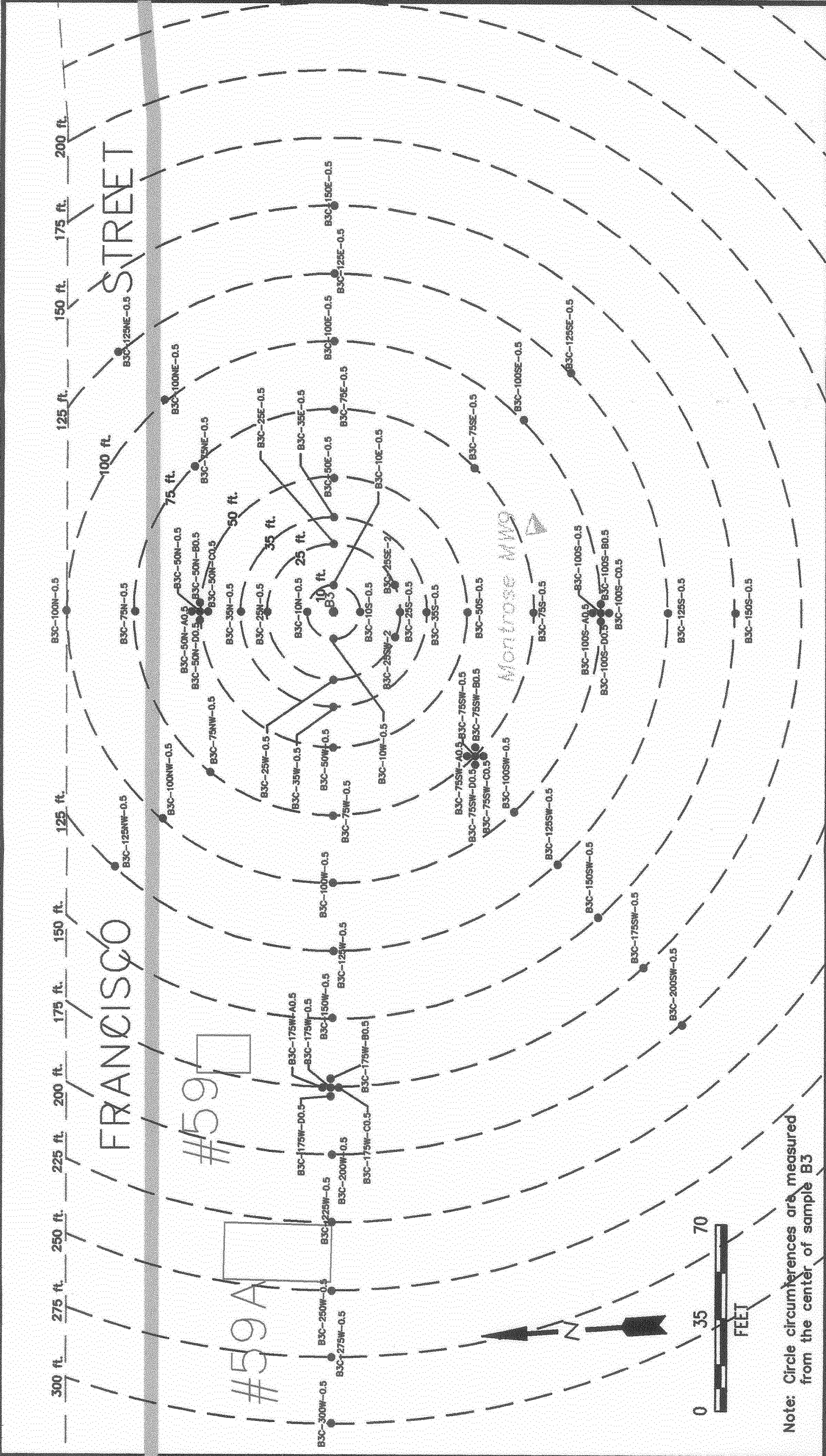
A detailed description and operational history of the C-6 facility is presented in the Parcel D Sampling and Analysis Plan (IESI 1999).


Parcel D, the subject of this excavation plan, occupies approximately 8 acres at the southeast corner of the C-6 facility (Figure 1-2). With the exception of a trash compactor, all surface structures and foundations have been demolished. Parcel D is bordered by Francisco Street to the north, Normandie Avenue to the east, Montrose Chemical Corporation to the south, and Parcel B to the west (Figure 1-3).

1.1 SITE INVESTIGATION AND DELINEATION SAMPLING

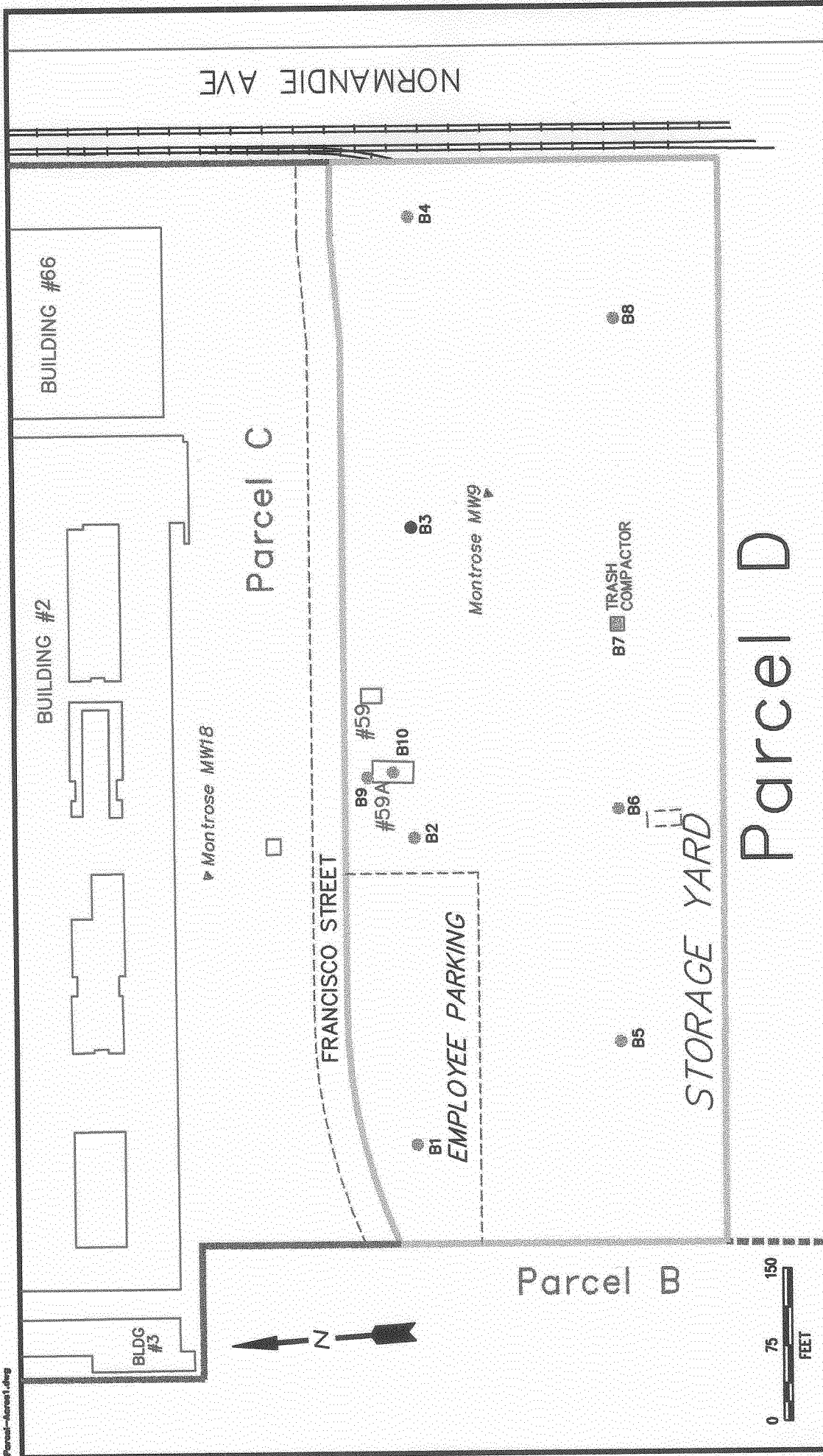
As part of the Parcel D cleanup and redevelopment effort, a site investigation was conducted in June 1999 to characterize soil conditions. In accordance with the approved Sampling and Analysis Plan (IESI 1999), environmental samples were collected and analyzed for constituents consistent with past and present site operations, to determine which areas contain constituents at levels requiring removal and/or treatment. Based on the data collected during the site investigation, only arsenic (at a single location) is present above its site-specific health-based remediation goal (HBRG). The HBRG for arsenic is 14 milligrams per kilogram (mg/kg). No other samples exhibit constituent concentrations above the HBRGs.


Based on the one elevated concentration of arsenic (boring B3 at 6 inches below ground surface [bgs]), additional soil samples were collected to delineate the horizontal and vertical extent of the contamination (Figure 1-4). Delineation sampling was conducted in 25-foot increments to the north, east, south, and west of boring B3, out to 300 feet. Samples were collected at depths of



<div><div><div><div>INTEGRATED</div><div>Environmental Services, Inc.</div><div>3990 Westery Place, Suite 210</div><div>Newport Beach, CA 92660</div><div>(949) 852-9050</div></div></div></div>		<div>TITLE:</div> <div>Parcel D Arsenic Delineation Sample Locations</div> <div>Boeing C-6 Facility</div> <div>Los Angeles, CA</div>			
		PROJECT NO.:		BOC6\ PDSAP	
		FIGURE NO.:			
		DWN:	JDL	DES.:	JDL
		CHK:	GY	APPD:	JPO
		DATE:	06/18/99	REV.:	2
				FIGURE NO.: 1-4	

Parcel-Acres1.dwg



 INTEGRATED Environmental Services, Inc. 3950 Westery Place, Suite 210 Newport Beach, CA 92660	TITLE: Parcel D Boeing C-6 Facility Los Angeles, CA	PROJECT NO.: BOC6\PDSAP			
		DWN: JDL	DES.: JDL	FIGURE NO.: 1-3	
		CHK: GY	APPD: JPO		
		DATE: 04/29/99		REV.: 2	



6 inches, 1 foot, and 2 feet bgs. The results of the delineation sampling indicate the elevated arsenic concentrations extend horizontally from boring B3 approximately 88 feet north, 113 feet east, 138 feet south, and 263 feet west (with approximate dimensions of 375 by 225 feet). Vertical delineation samples defined the arsenic-impacted soils to be confined to approximately 1.5 feet bgs, with a few isolated locations extending to approximately 2.5 feet bgs. Arsenic concentrations detected in the delineation samples ranged from 3.2 to 840 mg/kg. Seven sample locations exhibit arsenic concentrations between 100 mg/kg and 150 mg/kg. One sample collected 175 feet west of boring B3 exhibits a concentration of 220 mg/kg, and one sample collected 50 feet north of boring B3 exhibits a concentration of 840 mg/kg. Figures 1-5 and 1-6 present the delineation of arsenic contamination identified in Parcel D.

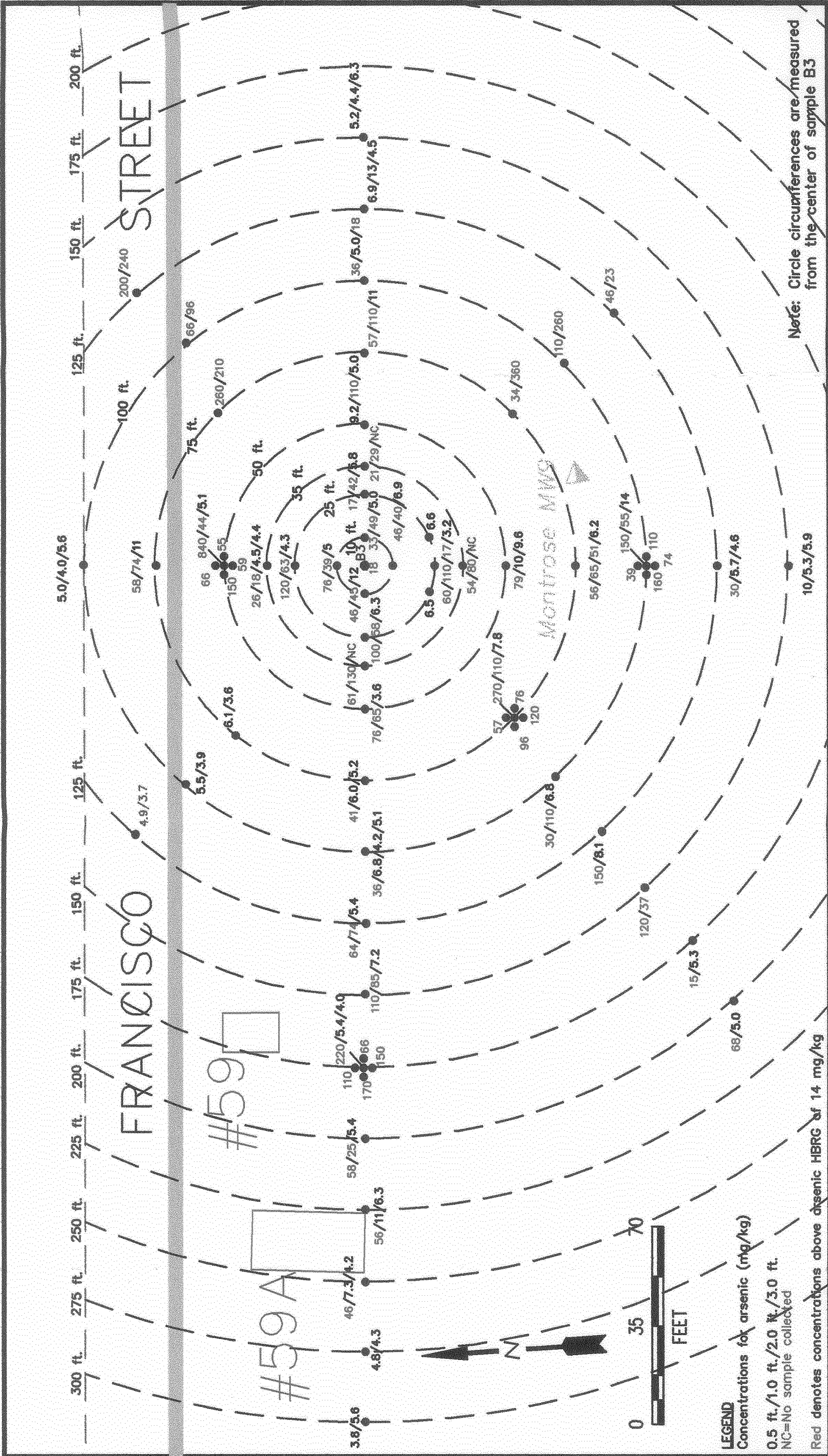
This work plan presents the approach and implementation procedures for the removal of arsenic-impacted soils identified in Parcel D. The soils to be excavated for off-site disposal are based on the results of the site investigation as well as delineation sampling.

1.2 SCOPE AND OBJECTIVES

As previously stated, delineation sampling was conducted to define the limits of arsenic impacted soil requiring excavation. The scope of work addressed by this excavation work plan includes:

- Excavation of soils with arsenic concentrations above the HBRG of 14 mg/kg
- Confirmation sampling
- Backfilling excavated areas with clean soil
- Disposal of excavated soil at an off-site disposal facility

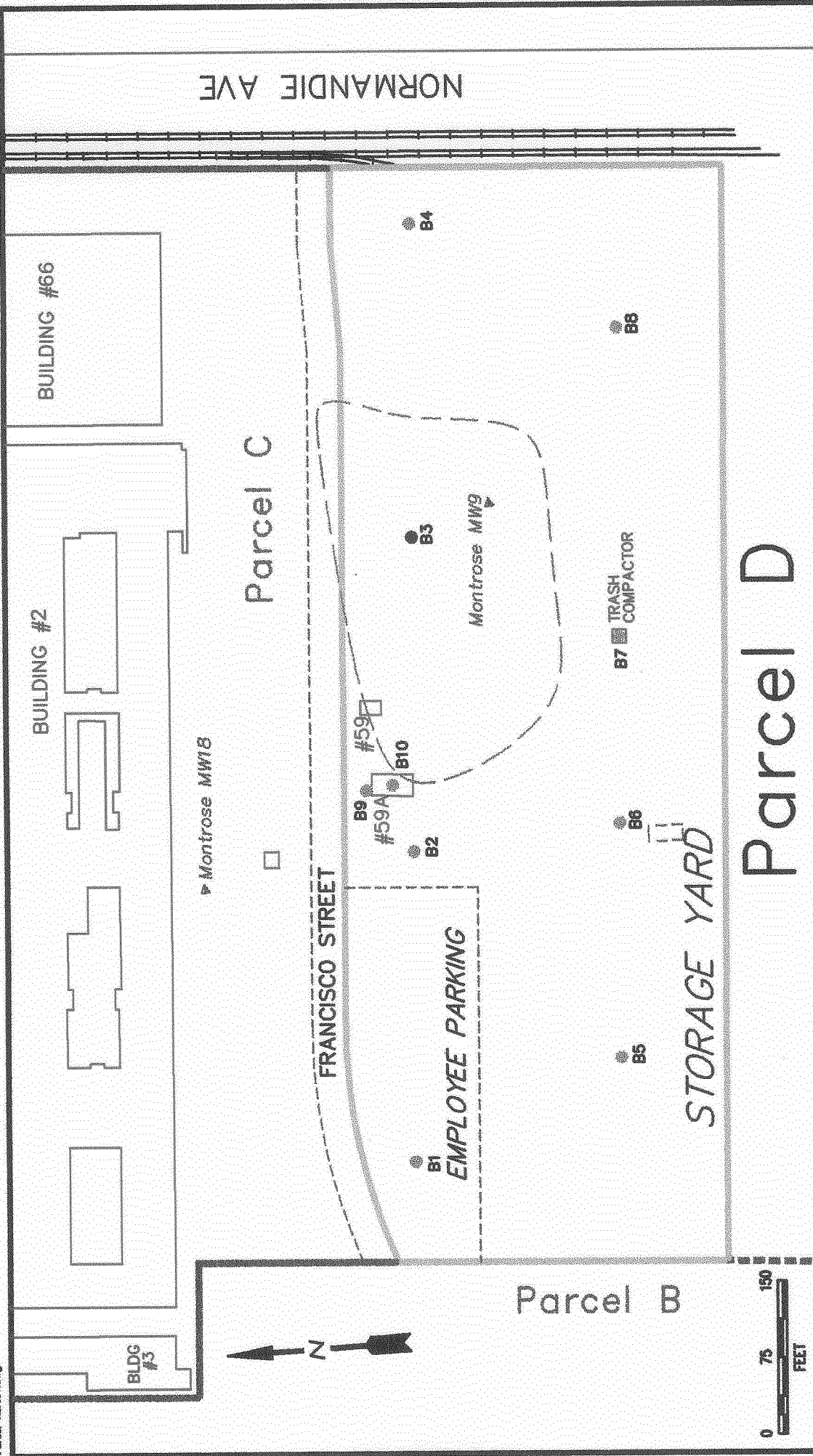
The objectives of the Parcel D excavation are to remove all soil containing arsenic at concentrations above the site-specific HBRG and to restore the property for safe reuse.




Note: Circle circumferences are measured from the center of sample B3

TITLE:		PROJECT NO.:			
Parcel D Detected Arsenic Concentrations Boeing C-6 Facility Los Angeles, CA		DWN:	DES.:	BOC6\PD SAP	
		JDL	JDL	CHK:	FIGURE NO.:
		JFH	APPD:	JPO	
INTEGRATED Environmental Services, Inc. 3990 Western Place, Suite 210 Newport Beach, CA 92660 (949) 852-9050		DATE:	REV.:	1-6	
		06/28/99	4		

Parcel-Arsen1.dwg



 INTEGRATED Environmental Services, Inc. 3990 Westbury Place, Suite 210 Newport Beach, CA 92660 (949) 842-9030	TITLE: Parcel D Arsenic Delineation Boeing C-6 Facility Los Angeles, CA		PROJECT NO.: BOC6\PD SAP	
			FIGURE NO.: 1-5	
	DWN: JDL	DES: JDL		
	CHK: GY	APPD: JPO		
			DATE: 04/29/99	REV.: 2



2. EXCAVATION PLAN

This section presents the excavation, backfilling, and disposal activities to be conducted for the removal of arsenic-impacted soil identified in Parcel D.

2.1 EXCAVATION

As previously stated, the arsenic-impacted soil has been delineated over an area of approximately 375 by 225 feet by, to a depth of 1.5 feet bgs, with a few isolated locations extending to approximately 2.5 feet bgs (Figure 1-6 in Section 1). Arsenic-impacted soil by definition, contains arsenic concentrations greater than the HBRG of 14 mg/kg. Excavation of this soil will be performed by a qualified, licensed contractor. The following protocol will be followed during soil excavation:

- The horizontal extent of the excavation will be marked off using paint or survey markers. Areas exhibiting total arsenic concentrations above 200 mg/kg, or concentrations above 14 mg/kg at depths below 2 feet bgs, or soluble arsenic concentrations above 5 mg/kg, will be further marked for isolated excavation.
- Isolated excavations will be performed at locations exhibiting total arsenic concentrations above 200 mg/kg or locations exhibiting concentrations above 14 mg/kg at depths below 2 feet bgs or soluble arsenic concentrations above 5 mg/kg (Figure 2-1). Excavation will begin at these locations and will be carried out using a backhoe. Soil will be removed to depths between 1.5 and 2.5 feet bgs, depending on the depth at which the elevated concentration is located. Excavated soil will be segregated by arsenic concentration ranges (e.g., greater than 500 mg/kg, between 200 and 499 mg/kg, etc.) and stockpiled in a designated area (see Section 2.3).
- Following the isolated excavation, confirmation sampling will be conducted (see Section 3). Further excavation activities around these areas will be suspended pending the return of analytical results.
- Excavation over the greater area will be conducted using a 9ABC rubber-tired loader with a 5-yard bucket. Soils will be removed to a depth of approximately 18 inches bgs (Figure 2-2). Excavated soils will be stockpiled in a designated area (see Section 2.3).



- If the results of the confirmation sampling indicate arsenic concentrations greater than 14 mg/kg, additional soil will be excavated and confirmation samples will again be collected. The excavation and confirmation sampling process will continue until arsenic concentrations are at or below 14 mg/kg.

Excavation activities will be conducted in accordance with the site-specific health and safety plan (see Appendix A). Immediately prior to and during soil excavation activities, the excavation area will be continuously watered to minimize the production of airborne particulates.

2.2 PLACEMENT OF EXCAVATED SOIL

Prior to excavation, the soil will be further characterized as follows:

- 1) Soils will be classified as non-RCRA hazardous waste if representative soil samples contain arsenic in total concentrations equal to or greater than its total threshold limit concentration (TTLC) of 1000 mg/kg in accordance with CCR Title 22.
- 2) Representative soil samples will be analyzed for soluble arsenic concentrations using the Waste Extraction Test (WET) if the total concentration of arsenic is equal to or greater than 10 times its soluble threshold limit concentration (STLC) of 5 mg/kg in accordance with CCR Title 22. Soil will be classified as non-RCRA hazardous waste if representative samples contain arsenic in soluble concentrations (based on the WET) equal to or greater than its STLC in accordance with CCR Title 22.
- 3) Additionally, representative soil samples that will be analyzed using the WET will also be analyzed for soluble arsenic concentrations using the Toxicity Characteristic Leaching Procedure (TCLP). Soil will be classified as RCRA characteristic hazardous waste if the soluble concentration of arsenic using the TCLP is equal to or greater than the toxicity characteristic (TC) in accordance with CCR Title 22.

If characterized as hazardous waste, the excavated soil will be placed in bins or 55-gallon drums. If the soil is deemed non-hazardous, it will be stockpiled in a designated area at the southeast corner of Parcel D. Because the southeast corner does not have a surface cover (i.e., concrete or asphalt), an impermeable plastic sheet will be placed on the ground prior to stockpiling. At the end of each working day, additional plastic sheet will be placed and secured over the stockpiled soil to prevent exposure of the soil to the atmosphere.



2.3 LAND SURVEYING

The confirmation sample locations and excavation area will be surveyed by a registered land surveyor using horizontal and vertical accuracies of ± 0.1 feet. The surveyor will generate a scaled base map of the site showing the locations of all surveyed features.

2.4 BACKFILLING

Following agreement by the Regional Water Quality Control Board (RWQCB) that the soil excavation has been completed, the excavated area will be backfilled with clean soil and compacted by a qualified, licensed contractor. A qualified soils engineer will direct and inspect all compaction activities.

2.5 OFF-SITE DISPOSAL

Soil excavated during this excavation program will be transported off site to an appropriate treatment or disposal facility.

2.6 WASTE MANAGEMENT

Personal protective equipment (PPE) used during excavation activities will be placed in a designated container for disposal.

Stockpile sampling will be conducted only if previous analysis of soil samples is inadequate to characterize the soil to the extent required by the off-site receiving facility. If stockpile samples are required, the necessary quantity of samples and analytical methodology will be determined by the receiving facility, based on the reported arsenic concentrations and volume of soil.



3. SAMPLING AND ANALYSIS PLAN

Confirmation soil sampling will be conducted to ensure that elevated concentrations of arsenic (above the HBRG of 14 mg/kg) do not remain following excavation activities. This section presents the sample collection, handling, and analytical procedures to be followed during the Parcel D excavation program. Also presented is the health and safety monitoring that will be conducted during the excavation activities.

3.1 SAMPLE COLLECTION

3.1.1 Post-Excavation Confirmation Sampling

After the soil has been excavated to the designated boundaries, confirmation samples will be collected to ensure that elevated arsenic concentrations (above 14 mg/kg) have been removed. All confirmation soil samples will be analyzed for arsenic only. Samples will be submitted to the laboratory for a 24- or 48-hour turn-around time. The protocols for confirmation sampling at the isolated excavation areas and the overall delineated arsenic-impacted area are presented below.

Isolated Excavation Areas

In the areas where excavation extends below 1.5 feet (isolated excavation areas), confirmation samples will be collected from the side walls and bottom. Because the top 1.5 feet of soil will be removed within the arsenic-impacted area (see Figure 2-2 in Section 2), the side wall samples in the isolated excavations will be collected at depths between 1.5 and 2.5 feet bgs. The side-wall and bottom confirmation samples will be submitted to the laboratory for expedited analysis of arsenic. If the confirmation-sample results exhibit arsenic concentrations above 14 mg/kg, additional soil will be excavated and additional confirmation samples will be collected. If the confirmation-sample results exhibit arsenic concentrations below 14 mg/kg, no further



excavation will be conducted. Figure 3-1 shows the confirmation sampling locations for the isolated excavations. Figure 3-2 shows the protocol established for the Boeing C-6 facility remediation program for surface soil.

Arsenic-Impacted Area

Following the completion of excavation activities to approximately 1.5 feet bgs, confirmation samples will be collected. If the confirmation-sample results exhibit arsenic concentrations above 14 mg/kg, additional soil will be excavated and confirmation samples collected (Figure 3-2). If the confirmation-sample results exhibit arsenic concentrations below 14 mg/kg, no further excavation will be conducted. Figure 3-3 shows the confirmation sampling locations.

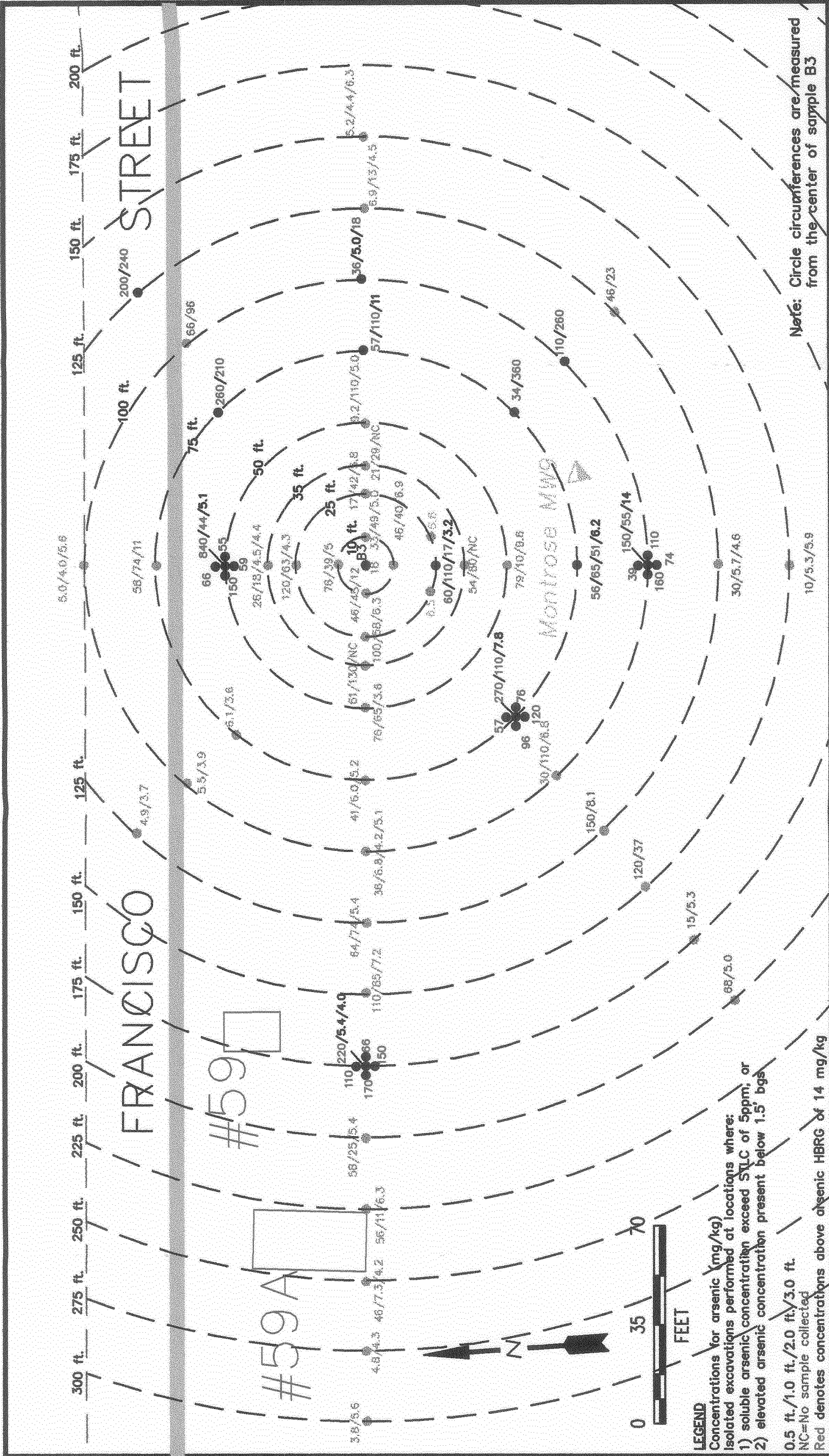
3.1.2 Sample Identification


Confirmation samples collected during the Parcel D excavation program will be assigned a unique identification number. This identification number will be used on all documentation relating to the collection, handling, analysis, and reporting of the analytical results of each sample. Samples will be numbered in consecutive order as they are collected. The following template will be used:

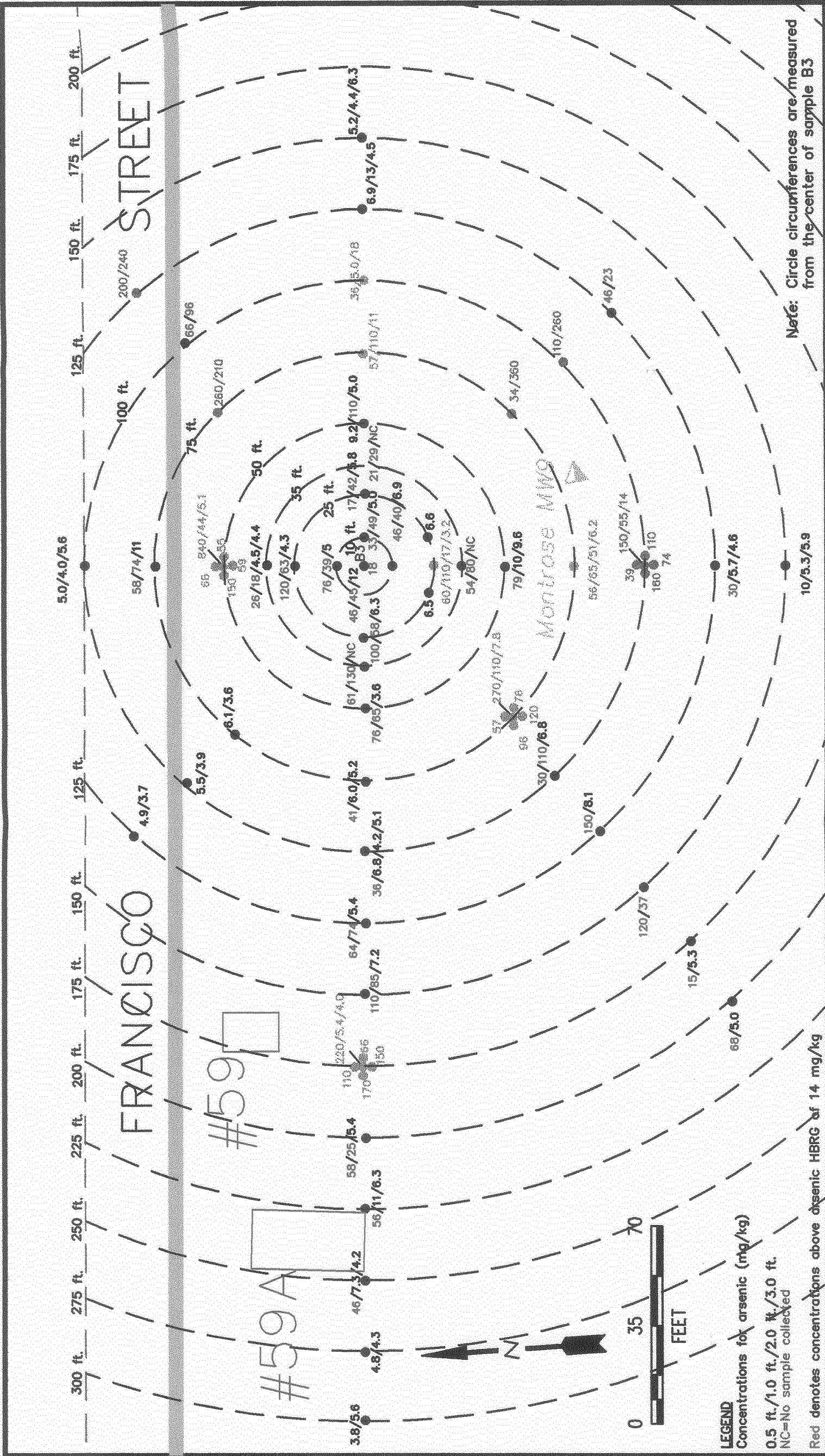
ParD-Cx-y

where

ParD	=	Parcel D
Cx	=	confirmation identification (e.g., C1)
y	=	sample depth (expressed in feet below ground surface)

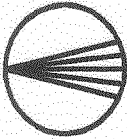


		INTEGRATED Environmental Services, Inc. 3990 Westery Place, Suite 210 Newport Beach, CA 92660 (949) 852-9050	
TITLE: Parcel D Isolated Arsenic Excavation Area Boeing C-6 Facility Los Angeles, CA			
DWN: JDL		DES.: JDL	
CHK: JFH		APPD: JPO	
DATE: 06/28/99		REV.: 3	
PROJECT NO.: BOC6\ PDSAP		FIGURE NO.: 2-1	



Note: Circle circumferences are measured from the center of sample B3

TITLE: Parcel D Arsenic Excavation to 1.5 feet bgs Boeing C-6 Facility Los Angeles, CA				PROJECT NO.: BOC6\PDSAP			
DWN: JDL		DES.: JDL		CHK: JFH		APPD: JPO	
DATE: 06/28/99		REV.: 3		FIGURE NO.:		2-2	



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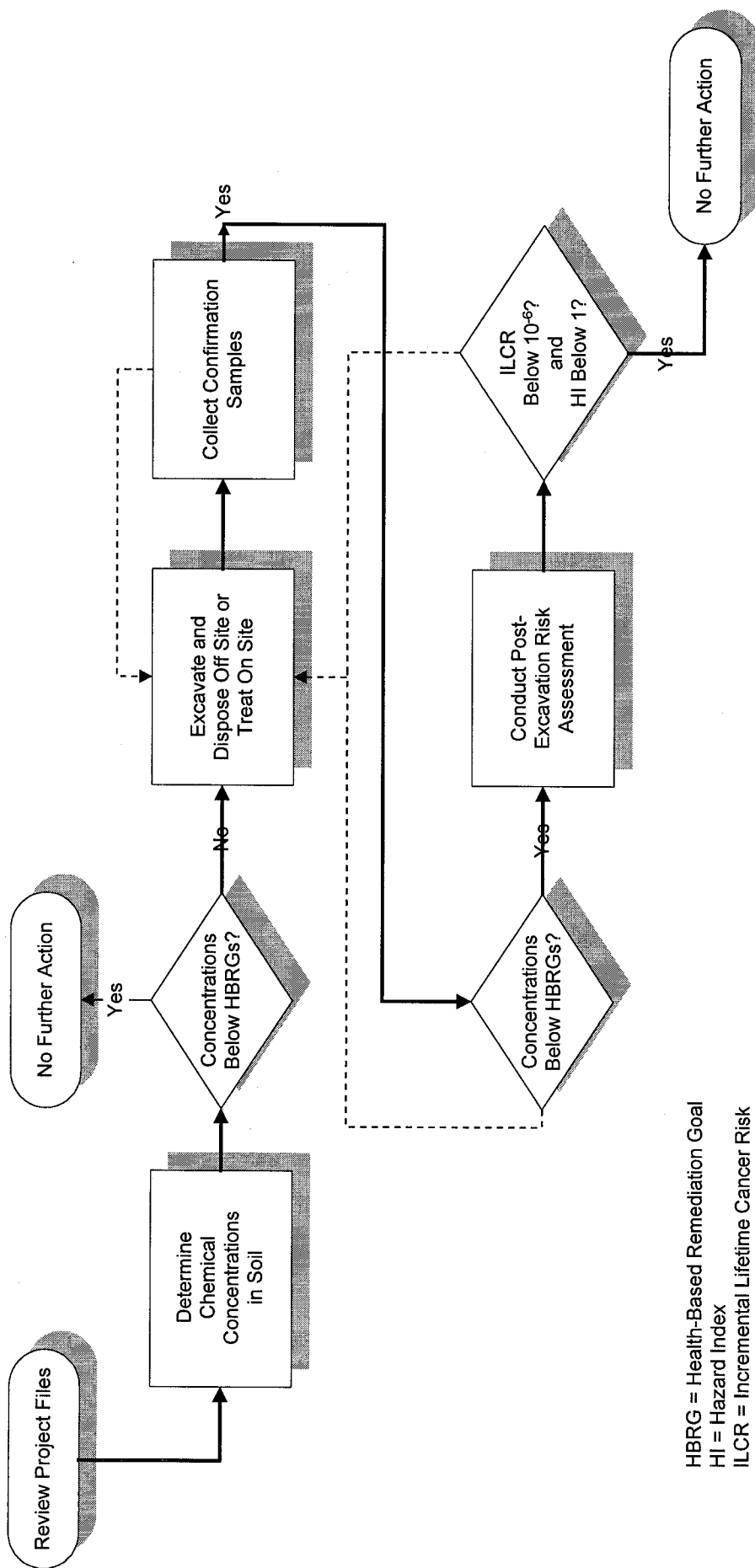
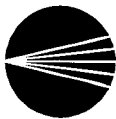


FIGURE 3-2. REMEDIATION PROGRAM FOR SURFACE SOILS



3.2 SAMPLE HANDLING

3.2.1 Sample Handling and Custody

Confirmation samples will be collected in 4-oz glass jars supplied by the laboratory. Samples will be placed in chilled coolers until they are transported to the laboratory. Completed chain-of-custody forms will accompany the samples to the laboratory where the laboratory custodian will receive and inspect the sample containers. Detailed procedures are included in the Parcel D Sampling and Analysis Plan (IESI 1999).

3.2.2 Laboratory Analysis

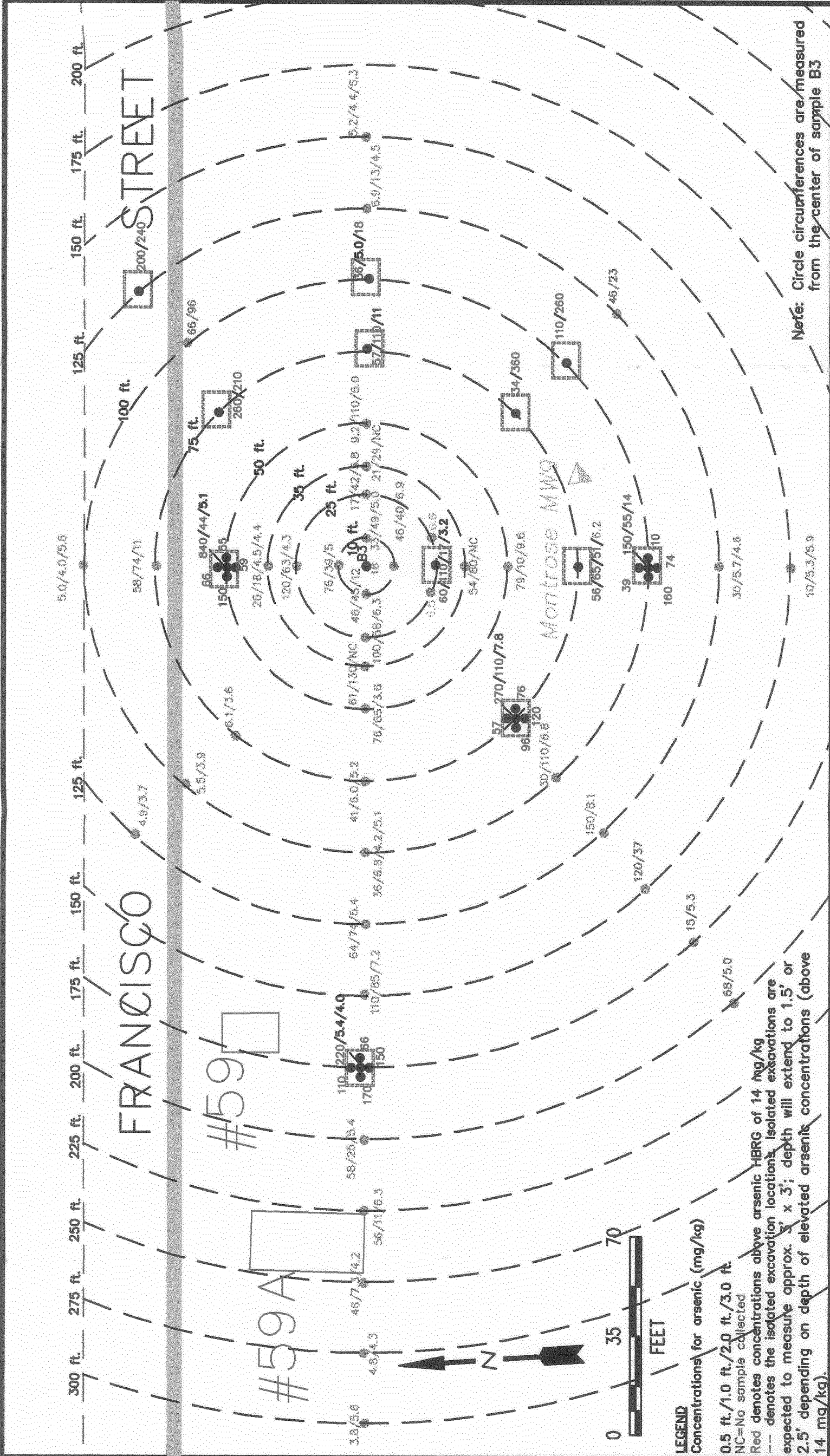
The laboratory analytical method to be used on the confirmation samples collected during the Parcel D excavation program is EPA Method 6010 for arsenic.


3.3 HEALTH AND SAFETY MONITORING

In accordance with Occupation Safety and Health Administration (OSHA) standards (CFR Title 29 part 1910.120, a site-specific health and safety plan has been prepared for the Parcel D excavation activities. The detailed health and safety plan is provided in Appendix A. A discussion of personnel requirements and health and safety monitoring is presented below.

3.3.1 Personnel Requirements

All field personnel involved with the Parcel D excavation activities will have completed OSHA-approved 40-hour training and annual refresher courses (as required) and actively participate in a medical surveillance program that meets the criteria of 29 CFR 1910.120. Additionally, each field member will be required to review and sign the health and safety plan prior to



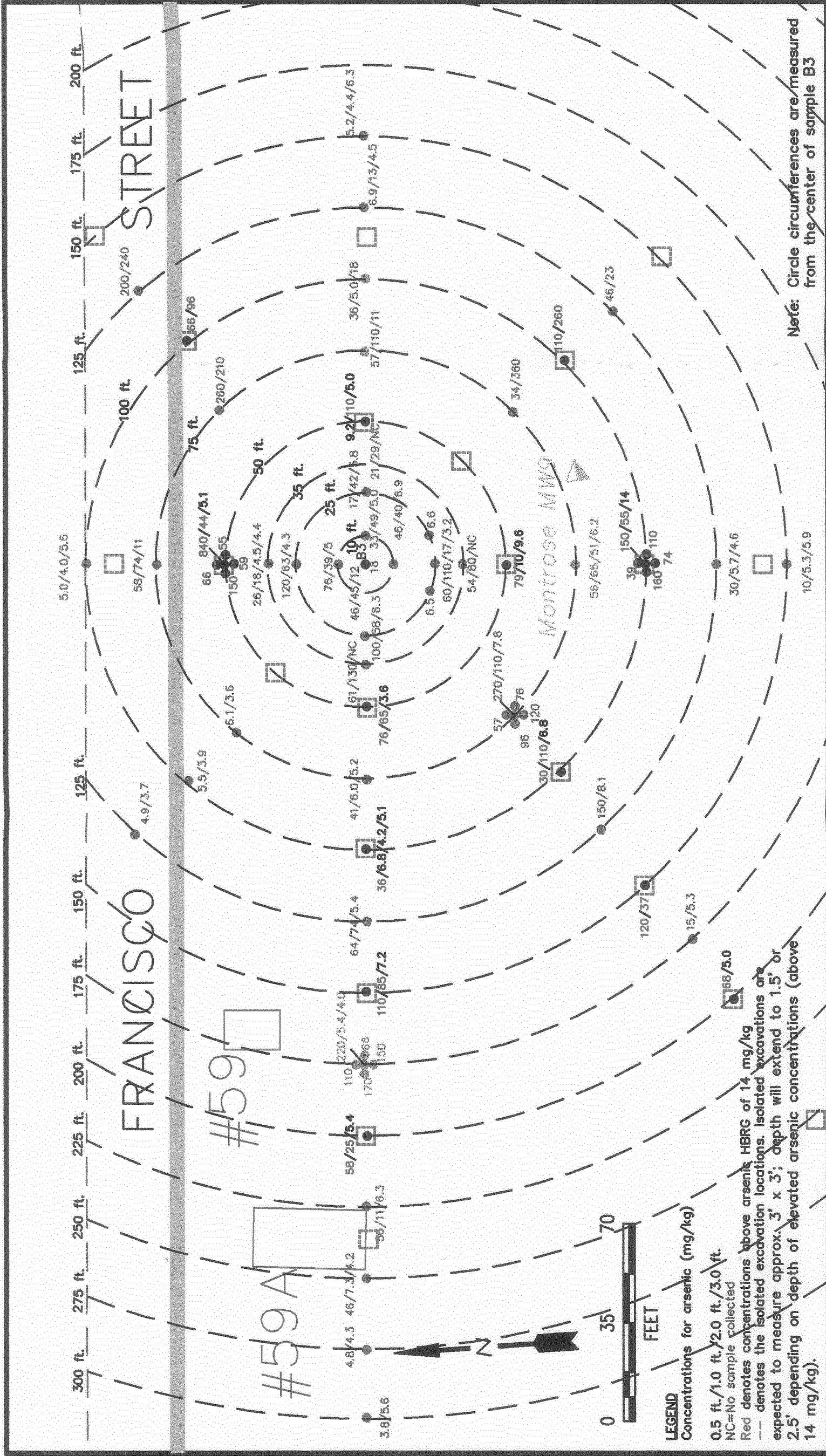


INTEGRATED
Environmental Services, Inc.
3990 Westerly Place, Suite 210 (949) 852-9050
Newport Beach, CA 92660

TITLE:
Parcel D Isolated Arsenic Excavation
Confirmation Sampling
Boeing C-6 Facility
Los Angeles, CA

DWN:	JDL	DES.:	JDL	PROJECT NO.:
CHK:	JFH	APPD:	JPO	BOC6\ PDSAP
DATE:	06/28/99	REV.:	4	FIGURE NO.:
				3-1

BOE-C6-0235067



Note: Circle circumferences are measured from the center of sample B3

TITLE:		PROJECT NO.:	
Parcel D Arsenic Excavation to 1.5 feet bgs		BOC6\ PDSAP	
INTEGRATED Environmental Services, Inc. 3990 Westerly Place, Suite 210 Newport Beach, CA 92660 (949) 852-9050	DWN:		DES.:
	JDL		JDL
	CHK:		APPD:
	JFH		JPO
		DATE:	REV.:
		06/28/99	4
		FIGURE NO.:	
		3-3	



commencement of work and to attend the "tailgate" health and safety meeting to be conducted at the beginning of each day.

3.3.2 Health and Safety Monitoring

Health and safety monitoring will be conducted during excavation activities. Wind speed and direction, breathing-zone dust concentrations, and perimeter-zone dust concentrations will be monitored.



4. REPORTING

Integrated will monitor the progress of the soil excavation program and maintain records, such as field notes, health and safety documentation, and laboratory reports, in the project file. At the completion of the program, a report will be prepared summarizing the excavation activities, analytical results, and waste disposal actions.

5. REFERENCES

Bayley Construction, (Bayley) 1998. *Bayley Construction Site-Specific Safety Plan, Boeing Facility, Los Angeles, California.*

Integrated Environmental Services, Inc. (IESI) 1997. *Health-Based Remediation Goals for Surface Soils, Douglas Aircraft Company C-6 Facility, Parcel A, Torrance, California.* Prepared for McDonnell Douglas Realty Company. August.

Integrated Environmental Services, Inc. (IESI) 1999. *Parcel D Sampling and Analysis Plan, Boeing Realty Corporation C-6 Facility, Parcel D, Los Angeles, California.* Prepared for Boeing Realty Corporation. May.

Regional Water Quality Control Board (RWQCB) 1999. Letter to S. Mario Stavale, Boeing Realty Corporation, re: Approval of Parcel D Sampling and Analysis Plan, Boeing Realty Corporation, C-6 Facility, Los Angeles, CA (File No. 100.315) (SLIC. No. 410). May 27.



APPENDIX A: HEALTH AND SAFETY PLAN

This Health and Safety Plan (HSP) has been prepared for the C-6 facility, Parcel D arsenic-impacted soils excavation program. The plan has been prepared to meet the requirements of the following Occupational Safety and Health Administration (OSHA) standards:

- Title 29, Code of Federal Regulations (CFR), Part 1910.120 – Occupational Safety and Health Standards
- Title 29, CFR, Part 1926 – Safety and Health Regulations for Construction

The information and guidelines presented in this HSP are intended as an addendum to the Bayley Construction Site-Specific Safety Plan for the Boeing C-6 facility at 19901 Normandie Avenue, Los Angeles, California (Bayley 1998). The contents of this addendum are specific to the soils excavation program. All field personnel are required to adhere to the requirements and procedures in site-specific safety plan as well as this addendum.

This plan is intended to inform site personnel of hazards that may appear during soil excavation activities, and to provide advance knowledge of the procedures necessary to minimize, eliminate, or respond to those hazards. A training session will be held before excavation work begins at the site to discuss the contents in this addendum HSP and its protocols. A copy of the HSP will be available to all personnel during excavation activities.

A.1 HEALTH AND SAFETY PERSONNEL AND RESPONSIBILITIES

The goal of the HSP is the prevention of occupationally related accidents and illnesses. To accomplish this goal, this HSP has been prepared to provide guidance and procedures to ensure:

- Safe working practices are followed



- All operations are conducted within the guidelines of established health and safety practices
- Work environments comply with federal, state, and local regulations related to employee health and safety
- Emergency procedures are established and ready for implementation in the event of an emergency

A.1.1 Staff Organization

To implement and enforce the requirements of the HSP, a health and safety management team will be organized. The team will consist of the project manager and a health and safety officer (HSO). The responsibilities of these individuals are presented below.

A.1.1.1 Project Manager

The project manager is responsible for and has authority over all arsenic-impacted soils excavation work performed on Parcel D. The project manager has the authority to stop work at the site in the event of an emergency, equipment breakdown, or identification of an unsafe procedure or work condition and has the authority to re-start work following correction of the problem. The project manager works closely with the HSO in matters of health and safety and works through the HSO to resolve conflicts or health and safety issues that arise.

A.1.1.2 Health and Safety Officer

The HSO is present on site full time during excavation and, along with the project manager, has overall authority and responsibility for implementing the HSP. Responsibilities of the HSO include:

- Implementing, overseeing, and enforcing the HSP
- Confirming site compliance with OSHA health and safety requirements
- Implementing the immediate correction of identified unsafe work conditions and practices



- Monitoring and evaluating the health and safety procedures
- Planning daily evacuation routes and safe, upwind locations for personnel and visitors to assemble during an evacuation
- Conducting accident and incident investigations and preparing incident reports
- Conducting the site orientation
- Ensuring that all site personnel meet the required training, medical, and field experience requirements
- Emphasizing the importance of safety to all supervisors and workers
- Maintaining safety equipment and supplies
- Conducting daily "tailgate" safety meetings for personnel

The HSO has the authority to stop work at the site in the event of an emergency, equipment breakdown, or identification of an unsafe procedure or work condition. The HSO will notify the project manager when work is stopped, describing the nature of the problem and the steps being taken to correct it. When it is safe for work to resume, the HSO will contact the project manager for approval to resume work at the site.

A.2 CONTRACTOR RESPONSIBILITIES

All site contractors are required to comply with the requirements set forth in this HSP. A copy of the HSP will be maintained at the site during excavation activities.

A.3 PERSONNEL RESPONSIBILITIES

The health and safety responsibilities of site personnel include:

- Reviewing, understanding, and complying with the HSP and safety instructions from the site superintendent, HSO, and project manager
- Observing all posted signs and warnings



- Taking responsible precautions to prevent injury to themselves and others and damage to equipment
- Immediately reporting all injuries, illnesses, accidents, unsafe work conditions, unsafe work practices, and violations of the HSP to site superintendent.

A.4 HEALTH AND SAFETY TRAINING

All workers performing excavation activities are required to have completed a 40-hour health and safety training program that complies with OSHA regulations as detailed in Title 29, CFR, Parts 1910 and 1926, and an annual 8-hour refresher course (as required) which also complies with applicable OSHA regulations. The goals of the training program are to:

1. Ensure that workers are aware of the potential safety hazards they may encounter
2. Provide the knowledge and procedures necessary to perform assigned tasks with minimal risk to health and safety
3. Ensure compliance with all occupational and environmental health and safety regulations and guidelines
4. Enhance the ability of field personnel to react responsibly, safely, and promptly to emergencies

Copies of certificates awarded at the completion of health and safety training are to be submitted to the HSO and will become part of the project file. Additionally, all workers performing excavation activities must be actively participating in a medical surveillance program that meets the criteria of 29 CFR 1910.120.

A.4.1 Site Orientation

The HSO will conduct a site orientation before work begins to discuss site-specific issues and procedures. All workers performing excavation activities are required to attend the orientation, during which excavation procedures, the HSP, and applicable occupational and environmental



health and safety laws, regulations, and guidelines will be discussed. At a minimum, this orientation will address the following topics:

- Requirements of this HSP
- Health and safety organization and responsibilities
- Site safety hazards and control or prevention measures
- Basic operational safety rules and procedures
- Safe work practices associated with each employee's work assignment
- Site prohibitions, including:
 - Use of alcohol or illegal drugs
 - Use of prescription or non-prescription medication without first informing the supervisor and HSO
 - Working when ill
 - Wearing loose fitting clothing, long dangling hair, or jewelry that could become entangled in equipment or machinery
- Available internal and external modes of communication and their locations

After the site orientation, all routine field personnel will be required to read and sign a copy of the HSP acceptance sheet provided in Attachment 1.

A.5 PHYSICAL HAZARDS AND CONTROLS

The identification of safety hazards at any construction site is crucial to the health and well-being of site workers and visitors. Safety hazards which workers may encounter during the excavation activities at the site, along with a bulleted list of appropriate controls or protective measures, are presented below. Additional hazards and controls or protective measures are presented in the site-specific safety plan (Bayley 1998).

Physical Hazards Associated with Operation of Heavy Equipment

- Inspect equipment daily at the beginning of each work shift.



- Fully lower blades, buckets, forks, and other equipment when not in use. Forklift forks will be carried as low as possible during operation.
- Secure all loose items before operating machinery.
- Do not operate equipment on unstable or unsafe inclines. Use rollover protection on equipment that has the potential to rollover, such as a backhoe working on an incline.

Cuts or Entanglement in Equipment or Machinery with Exposed or Moving Parts

- Do not operate equipment without proper safety guards installed.
- Do not wear loose-fitting or dangling clothes, hair, or jewelry.
- Stay clear of rotating machinery and pinch points.
- Wear gloves when using hand tools or equipment if the potential for impact injuries or cuts exist.
- Equipment operators, supervisors, the HSO, and on-site emergency response personnel are required to know the location and proper operation of equipment shut-down devices ("kill switches", etc.).

Heat Stress

- Workers will be trained to recognize the signs and symptoms of heat illness:
 - Heat cramps, e.g., muscle spasms during or after work shift
 - Heat exhaustion, e.g., fatigue, clammy skin, nausea, profuse sweating
 - Heat stroke, e.g., confusion, hot dry skin, *absence* of sweating (life threatening)
- Workers experiencing symptoms of heat illness will be moved to a cool area, given cool fluids (if conscious), and showered with water to reduce body temperature. Medical attention must be sought immediately.
- Shelter or shaded areas will be provided for work tasks (where feasible) and break areas.
- Work schedules will be adjusted by rotating personnel or alternating job functions to minimize heat stress or overexertion at one task.
- Maintain normal body fluid levels by consuming 16 ounces (2 cups) of water prior to beginning the shift and about 8 ounces (1 cup) every 15 to 20 minutes during shift. Two gallons of water should be consumed during an 8-hour period. A supply of potable water and electrolyte replacement solutions will be maintained on site.



A.6 ACCESS CONTROL

Control measures will be implemented to prevent unauthorized access to the excavation area. The number of personnel accessing the excavation area will be limited to those performing excavation activities and personnel monitoring.

A.7 EMERGENCY PROCEDURES AND WORK PLAN

Site personnel and visitors to the C-6 facility shall follow the Emergency Procedures and Work Plan, which describes procedures to be followed by all during emergencies (see Section 7 in the Bayley Construction Site-Specific Safety Plan). This plan is maintained by Bayley Construction and is available for review. The contingency plan includes such information as emergency contacts, evacuation routes and procedures, and emergency equipment.

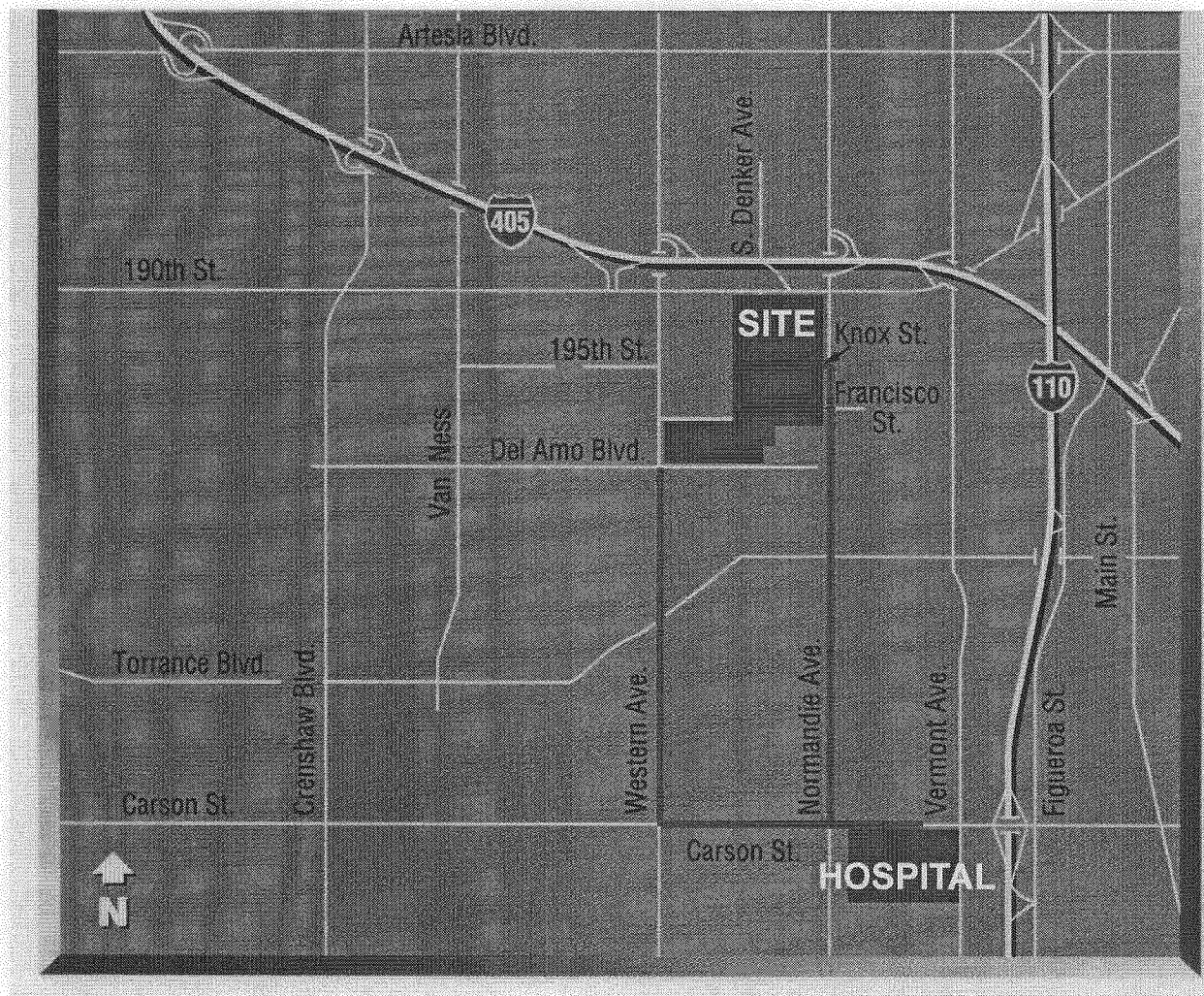
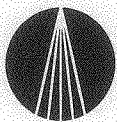
The nearest hospital, Harbor-UCLA Medical Center, is located at 1000 West Carson Street in Carson, California. The hospital can be reached by driving south on either Normandie Avenue or Western Avenue to Carson Street, turning left onto Carson Street, and traveling east to the hospital. The emergency entrance is on Carson Street. A map is provided in Figure A-1.

A.8 LOGS AND REPORTS

During the implementation of this plan, at a minimum, the following forms will be completed:

- HSP acceptance sheets
- Daily tailgate safety meeting forms
- Illness and injury reports
- Copies of training certificates

These forms and their maintenance requirements are described in the following sections.



HARBOR-UCLA MEDICAL CENTER
1000 WEST CARSON STREET
CARSON, CA

310-222-2345

FIGURE A-1
LOCATION OF NEAREST HOSPITAL



A.8.1 Training Logs and Certificates

Site personnel are required to attend the site orientation described in Section A.4.1 before beginning work at the site. All personnel attending the orientation will be required to read and sign a copy of the HSP acceptance sheet provided in Attachment A. This sheet serves as proof that individuals signing the sheet have received the required training and have promised to abide by the conditions stated in the HSP. Copies of the HSP acceptance sheet will be placed in the project file and maintained on site.

A.8.1.1 Daily Tailgate Safety Meeting Log

Tailgate safety meetings will be conducted each morning by HSO to discuss work activities, emergency response procedures, proper use of safety equipment, and prior safety problems or improper work practices. The HSO will document the meetings and each person attending the meeting will be required to sign a form.

A.8.1.2 Daily Equipment Inspection Log

Heavy equipment will be inspected before the beginning of each work shift. The equipment operator will complete the daily equipment inspection log and provide it to the HSO. Equipment that does not pass inspection cannot be used until repairs are made and a follow-up inspection is passed.

A.8.2 Incident Reports

The HSO is responsible for completing an incident report for any ill or injured employee. In addition, the HSO is required to investigate and determine the probable cause of all on-site incidents resulting in an injury to personnel, damage to property, fire, explosion, or chemical leaks or spills. The goal of the investigation is to determine the cause of the incident and to devise controls or procedures to prevent. Within 24 hours of the incident, the HSO shall prepare a written report to the project manager describing the incident, its probable cause, and measures



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taken to prevent recurrence. The report will include any forms filed regarding the incident, such as illness and injury forms, accident forms, and fire or police department reports.

ATTACHMENT 1

**HEALTH AND SAFETY PLAN
ACCPETANCE SHEET**

HEALTH AND SAFETY PLAN ACCPTANCE SHEET

- The undersigned have attended the Health and Safety Site Orientation and understand the hazards and control measures required for construction activities at the site.
- By signing this form you are agreeing to follow the procedures outlined in the Health and Safety Plan and to inform your site supervisor or HSO if any unsafe work conditions or practices are observed.
- Failure to follow the procedures outlined in the Health and Safety Plan can be cause for removal from the project.

DATE	NAME	COMPANY	SIGNATURE

ATTACHMENT 2

TAILGATE SAFETY MEETING

TAILGATE SAFETY MEETING FORM

GENERAL SITE INFORMATION

Date:

Supervisor:

HEALTH & SAFETY PLAN REVIEW

General Information

- ☐ Site History
- ☐ Health & Safety Objectives
- ☐ Chain-of-Command
- ☐ Response to Media Inquiries
- ☐ General Site Hazard Assessment
- ☐ Visitor Policy

Site Emergency Procedures

- ☐ Emergency Notification Signals
- ☐ Emergency Evacuation Route
- ☐ Safe Assembly Point Locations
- ☐ Phone Locations
- ☐ Emergency Phone List
- ☐ Emergency Equipment Locations
- ☐ Hospital Location

Construction Operations

- ☐ Equipment Inspections
 - ☐ Physical Hazards
 - ☐ Biological Hazards
 - ☐ Chemical Hazards
 - ☐ Noise Monitoring
 - ☐ Heat Stress
-

ORDER OF BUSINESS

Field Activity:

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.....

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Injuries or Accidents Since Previous Meeting:

.....

.....

Additional Comments:

.....

.....

SIGNATURE

[illegible]

SUPERVISOR SIGNATURE: _____